

Communications and Routing

1 Balanced Sliding Window Algorithm (10 points)

Consider the balanced sliding window algorithm with the following values:

- $l_p = 3$
- $l_q = 5$

Assume there are 16 packets to send (numbered 0–15) from p to q and 16 packets to send from q to p . Show the behavior of the balanced sliding window algorithm with the following events:

- Packets 1, 5, 9, 12 from p to q are dropped the first time
- Packets 6, 10 from q to p are dropped the first time

For each step in the algorithm's execution, show:

- a_p, s_p , and the range of packets which p can send
- a_q, s_q , and the range of packets which q can send

In addition to the fairness principles discussed in class, preserve the following rule in your execution:

- The sender always gives priority to “fresh” packets, ones which have not yet been sent even once

To simplify your traces, you may show the cumulative effect of the arrival of a group of packets. For example, if q has sent packets 0, 1, 2, 3, 4 and they all arrive successfully at p , you may show all of their effects at p in a single step.

What to turn in by 18 June 2011 at 11:59pm

Turn in the above work:

- via Telem
- by hand
- via email to `ise435@gmail`

You may write your proofs or arguments in English or Hebrew. If hand-written, I must be able to read the proof without outside help.